

### **AMENDMENTS TO THE CLAIMS**

Claim 1 (Withdrawn) A polishing tool for polishing an object, wherein the polishing tool is comprised primarily by a thermoplastic resin.

Claim 2 (Withdrawn) A polishing tool according to claim 1, wherein the polishing tool is a fixed-abrasive polishing tool that contains abrading particles within the tool.

Claim 3 (Withdrawn) A polishing tool according to claim 1, wherein the polishing tool is a non-fixed-abrasive polishing pad.

Claim 4 (Withdrawn) A polishing tool according to claim 2, wherein the abrading particles include cerium oxide ( $\text{CeO}_2$ ), alumina ( $\text{Al}_2\text{O}_3$ ), silicon carbide ( $\text{SiC}$ ), silicon dioxide ( $\text{SiO}_2$ ), zirconia ( $\text{ZrO}_2$ ), iron oxides ( $\text{FeO}$ ,  $\text{Fe}_3\text{O}_4$ ), manganese oxide ( $\text{MnO}_2$ ,  $\text{Mn}_2\text{O}_3$ ), magnesium oxide ( $\text{MgO}$ ), calcium oxide ( $\text{CaO}$ ), barium oxide ( $\text{BaO}$ ), zinc oxide ( $\text{ZnO}$ ), barium carbonate ( $\text{BaCO}_3$ ), calcium carbonate ( $\text{CaCO}_3$ ), diamond ( $\text{C}$ ), or a composite material comprised by those recited above.

Claim 5 (Withdrawn) A polishing tool according to claim 1, wherein the polishing tool is formed by injection molding to charge a feed material under pressure into a mold of a specific shape.

Claim 6 (Withdrawn) A polishing tool according to claim 1, wherein a material comprising the polishing tool further comprises an interface activation agent.

Claim 7 (Withdrawn) A polishing tool according to claim 1, wherein a material comprising the polishing tool further comprises a hydrophilic substance or said material is modified by adding the hydrophilic substance.

Claim 8 (Withdrawn) A fixed-abrasive polishing tool for polishing an object, said polishing tool comprising:

abrading particles; and

a resin for binding said abrading particles in a matrix of said resin, wherein said resin comprises thermoplastic resin.

Claim 9 (Withdrawn) A fixed-abrasive polishing tool according to claim 8, wherein the abrading particles include cerium oxide ( $\text{CeO}_2$ ), alumina ( $\text{Al}_2\text{O}_3$ ), silicon carbide ( $\text{SiC}$ ), silicon dioxide ( $\text{SiO}_2$ ), zirconia ( $\text{ZrO}_2$ ), iron oxides ( $\text{FeO}$ ,  $\text{Fe}_3\text{O}_4$ ), manganese oxide ( $\text{MnO}_2$ ,  $\text{Mn}_2\text{O}_3$ ), magnesium oxide ( $\text{MgO}$ ), calcium oxide ( $\text{CaO}$ ), barium oxide ( $\text{BaO}$ ), zinc oxide ( $\text{ZnO}$ ), barium carbonate ( $\text{BaCO}_3$ ), calcium carbonate ( $\text{CaCO}_3$ ), diamond ( $\text{C}$ ), or a composite material comprised by those recited above.

Claim 10 (Withdrawn) A fixed-abrasive polishing tool according to claim 8, wherein a porosity is formed in said polishing tool.

Claim 11 (Withdrawn) A fixed-abrasive polishing tool according to claim 10, wherein a range of composition of fixed-abrasives (percentages of abrading particles ( $V_g$ ), binder ( $V_b$ ) and air porosity ( $V_p$ )) in volume percent (vol%) are:  $10\% < \text{abrading particles } (V_g) < 50\%$ ,  $30\% < \text{binder } (V_b) < 80\%$ , and  $0\% < \text{air porosity } (V_p) < 40\%$ .

Claims 12-37 (Cancel)

Claim 38 (Withdrawn) A polishing apparatus for polishing a semiconductor wafer, comprising:  
a topring for holding the wafer; and  
a polishing tool, said polishing tool comprised primarily by a thermoplastic resin.

Claim 39 (Withdrawn) A polishing apparatus according to claim 38, wherein said semiconductor wafer has patterns comprised by high portions and low portions.

Claim 40 (Withdrawn) A polishing apparatus for polishing a semiconductor wafer, comprising:

a topring for holding the wafer; and  
a fixed-abrasive polishing tool, said polishing tool comprising abrading particles and a resin for binding said abrading particles in a matrix of said resin, said resin comprises thermoplastic resin.

Claim 41 (Withdrawn)      A polishing apparatus according to claim 40, wherein a range of composition of fixed-abrasive polishing tool (percentages of abrading particles (Vg), binder (Vb) and air porosity (Vp)) in volume percent (vol%) are:  $10 \% < \text{abrading particles (Vg)} < 50 \%$ ,  $30 \% < \text{binder (Vb)} < 80 \%$ , and  $0 \% < \text{air porosity (Vp)} < 40 \%$ .

Claim 42 (Withdrawn)      A polishing apparatus according to claim 40, wherein said semiconductor wafer has patterns comprised by high portions and low portions.

Claim 43 (Withdrawn)      A polishing apparatus according to claim 40, further comprising: a dresser for dressing a polishing surface of said fixed-abrasive polishing tool.

Claim 44 (Withdrawn)      A polishing apparatus according to claim 40, wherein said fixed-abrasive polishing tool is mounted on a base.

Claim 45 (Withdrawn)      A polishing apparatus according to claim 44, wherein a polishing tool comprised by said fixed-abrasive polishing tool and said base is mounted detachably on a polishing table.

Claim 46 (Withdrawn)      A polishing apparatus according to claim 45, wherein said polishing tool is fixed to said polishing table by clamps.

Claim 47 (Withdrawn)      A polishing apparatus for polishing a semiconductor wafer, comprising:  
at least one topring for holding the wafer; and

at least two polishing tables providing polishing surfaces respectively, wherein one of said polishing table having a fixed-abrasive polishing tool, said polishing tool comprising abrading particles and a thermoplastic resin for binding said abrading particles.

Claim 48 (Withdrawn)      A method of polishing a substrate comprising:  
polishing the substrate firstly by a fixed-abrasive polishing tool, said polishing tool comprising abrading particles and a thermoplastic resin for binding said abrading particles; and  
finishing the substrate secondly by a finishing pad.

Claim 49 (Withdrawn)      A method according to claim 48, wherein said first polishing is performed by supplying liquid not containing abrading particles.

Claim 50 (Withdrawn)      A method according to claim 48, wherein said first polishing is performed by supplying water containing additive agent.

Claim 51 (Withdrawn)      A method according to claim 48, wherein said finishing step is performed by supplying water.

Claim 52 (New)      A method for manufacturing a fixed-abrasive polishing tool comprising:  
mixing abrading particles and a resin in a liquid;  
drying said mixed abrading particles and resin to obtain mixed powders;  
filling said mixed powders into a mold; and  
heating and pressing said mixed powders in said mold so as to control porosity of said fixed-abrasive polishing tool in a certain range.

Claim 53 (New)      A method according to claim 52, wherein said drying comprises a mist drying step.

Claim 54 (New)      A method according to claim 53, wherein said mist drying step comprises a spray drying step.

Claim 55 (New)      A method according to claim 52, wherein said mixed powders are in a diameter of a range of 1~500 $\mu$ m.

Claim 56 (New)      A method according to claim 52, wherein said abrading particles are provided in a slurry state.

Claim 57 (New)      A method according to claim 52, wherein said resin is provided in a liquid state where said resin is dispersed or dissolved in a water or a solvent.

Claim 58 (New)      A method according to claim 52, wherein said liquid comprises water or a solvent.

Claim 59 (New)      A method according to claim 52, further comprising at least one additive of a surface-active agent, a polishing promoter, and an elastic material being added during said mixing.

Claim 60 (New)      A method according to claim 52, wherein said porosity is controlled to 0-20% in volumetric composition of the fixed-abrasive polishing tool.

Claim 61 (New)      A method according to claim 52, wherein said porosity is controlled to 5-15% in volumetric composition of the fixed-abrasive polishing tool.

Claim 62 (New)      A method according to claim 52, wherein said mixed powders are pressed with less pressure firstly, and then pressed with more pressure during said pressing in the mold.

Claim 63 (New)      A method for manufacturing a fixed-abrasive polishing tool comprising:

mixing abrading particles and a raw material of a resin in a liquid;  
polymerizing the resin during said mixing;  
drying said mixed abrading particles and polymerized resin to obtain mixed powders;  
filling said mixed powders into a mold;  
heating and pressing said mixed powders in said mold so as to control porosity of said fixed-abrasive polishing tool in a certain range.

Claim 64 (New)      A method according to claim 63, wherein said drying comprises a mist drying step.

Claim 65 (New)      A method according to claim 64, wherein said mist drying step comprises a spray drying step.

Claim 66 (New)      A method according to claim 63, wherein said mixed powders are in a diameter of a range of 1~500 $\mu$ m.

Claim 67 (New)      A method according to claim 63, wherein said abrading particles are provided in a slurry state.

Claim 68 (New)      A method according to claim 63, wherein said liquid comprises water or a solvent.

Claim 69 (New)      A method according to claim 63, further comprising additives such as surface-active agent, polishing promoter, or elastic material being added during said mixing.

Claim 70 (New)      A method according to claim 63, wherein said porosity is controlled to 0-20% in volumetric composition of the fixed-abrasive polishing tool.

Claim 71 (New)      A method according to claim 63, wherein said porosity is controlled to 5-15% in volumetric composition of the fixed-abrasive polishing tool.

Claim 72 (New)      A method according to claim 63, wherein said mixed powders are pressed with less pressure firstly, and then pressed with more pressure during said pressing in the mold.